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Biliousness.
See page 216.

HEALTH

A WEEKLY JOURNAL OF

DOMESTIC AND SANITARY SCIENCE.

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EDITED BY DR. ANDREW WILSON, F.R.S.E. &C.

VOL. XII.—No. 300. FRIDAY, JANUARY 4, 1889. [PRICE TWOPENCE.

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◆ HEALTH ◆

EDITED BY

DR. ANDREW WILSON, F.R.S.E., &c.

LONDON: *FRIDAY, JANUARY* 4, 1889.

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Notes by the Way

BY THE EDITOR.

"Health is the foundation of all our physical happiness."—*Herder.*

A PARIS correspondent of a medical contemporary writes that Dr. Halter, first assistant in the hospital at Lengerich, recently published a paper on the immunity of workmen employed in limekilns from consumption, in which he makes some suggestions for the treatment of that disease. Dr. Halter says that he has been struck by the fact that in a country district which otherwise showed a large number of deaths from consumption, the workers in limekilns had, without exception, been exempt from phthisis during fifteen years. The fine chalk dust which they inhale is, according to him, of as little importance as the dry soil on which they live. The essential thing is the hot, dry air which they constantly breathe. The temperature in which they work is from 50 degs. to 70 degs. C. (122 degs. to 156 degs. F.). The relative moisture of the air never exceeds more than 50 per cent., so that the air there is similar to that of places most famous for their climate—such as Davos, Denver, San Remo, Cairo.

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A STUDY of the geographical distribution of disease clearly shows that a region in which the air is dry is, other things being equal, less liable to breed consumption than one where the air is damp. It is, at least, impossible to explain in any other way why consumption occurs more frequently in the Alps, high up in the cloudy region (1,100 to 1,500 mètres), than either above or below that level. The physiological explanation of this circumstance is found in the fact that processes of decay are little favoured by dry air; the excessive secretion in the air-passages is dried up, putrid secretions thickened, calcification of tubercles promoted, tendency to pyæmia and miliary tuberculosis diminished. Of equal importance is the heating of the air. This is the case, first, because it is free from organisms, which are destroyed by the heat of the kiln; secondly, if air is heated it becomes more rarified: one must therefore breathe more deeply and more quickly in order to get a sufficient quantity of oxygen, thus promoting a more perfect aëration of the lungs.

✣ ✣ ✣

THE most favourable temperature for tubercle bacilli (or the germs of consumption) is between 37 degs. and 38 degs. C. (98·6 degs. to 100·4 degs.); they die at 41 degs. C. (105·8 degs. F.). Halter therefore thinks that a high temperature of the inspired air might warm the air in the lungs sufficiently to prevent the growth of bacilli in them. He found by calculation and experiment that inhalation of hot, dry air of 120 degs. to 180 degs. C. (248 degs. to 356 degs. F.) raised the temperature of expired air to about 43 degs. C. (109·4 degs. F.), that is, to a degree of temperature in which tubercle bacilli perish. The air which workmen in limekilns inhale is not so warm, but before they have got acclimatized to the atmosphere in which they work, the temperature of their expired breath rises considerably above the normal, and after acclimatization has taken place, pulse, respiration, perspiration, and metabolism are greatly increased.

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THUS an imitation of what occurs in hectic fever takes place—heat, perspiration, &c.; and Halter thinks fever the most efficacious means of destroying pathogenic organisms and their products within the body. He recommends, therefore, as preventives of consumption of the air-passages and the lungs the Roman hot-air bath, and inhalations of dry air of from 50 degs. to 100 degs. C. (122 degs. to 212 degs. F.) by means of an apparatus which he has devised. Dr. Weigert, of Berlin, is disputing with Dr. Halter the priority of this suggestion. The dispute is still further complicated by a publication in which Dr. E. Krull, of Güstrow, states that for more than two years he has made similar experiments, although he made them with damp air. The temperature

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AND OF ALL CHEMISTS.

of the inhaled air was in Krull's experiments not higher than 50 degs. C. (122 degs. F.), and yet the temperature of the expired air was not less than 107·6 degs. F., a degree of heat which is fatal to the tubercle bacillus. His results were satisfactory, principally in cases of commencing consumption.

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Speaking of the winter dress of men, the *British Medical Journal* wisely says that when any question is raised as to the wisdom or otherwise of certain modes or habits in regard to dress, it is commonly supposed that it is only foolish women or helpless children who require advice. There are perhaps at least as many men as women who suffer from the effects of cold through injudicious neglect of the clothing suitable for winter use, and thus contract sciatica, rheumatism, or pneumonia. Men acquire lumbago from the open coat and the waistcoat with a cotton back, but which ought to be lined with flannel. Not only do men frequently neglect to use an overcoat with the commencement of the cold season, but often they will leave the frock-coat unbuttoned, so that it becomes almost useless, in a cold wind, as a means of protecting the loins.

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Tight kid gloves and tight thin boots are frequent causes of cold hands and chilled feet, especially when accompanied by the persistent use of thin socks. When there is a known tendency to catarrh, or delicacy of lungs, the garments should be made well-fitting round the neck, and the collar not too loose and open, the waistcoat buttoning high, while continuous flannel undergarments are used uniformly over the body. The dress clothes being so much thinner than those worn during the day, it is well that in winter a high-fitting waistcoat be used under the shirt to protect the trunk. These and many other common-sense points as to winter dress are frequently neglected till mischief has occurred, or a warning has taught wisdom. The wiser man is he who changes his clothing according to the weather in such a variable climate as ours.

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I observe that Dr. Thos. Britton, of Harrogate, writes to the *Lancet* that he is indebted to the ingenuity of a lady patient for the following simple but effective mode of applying hot moist fomentations. She puts a square yard of flannel into one of the patent potato squeezers, pours boiling water upon it, and squeezes it; and this is done so effectually that the bedclothes, &c., are not made wet and uncomfortable by the application of the flannel, as they are when it is simply wrung out by the hands.

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Patin recommends for ingrowing toe-nails a long-continued footbath, after which the nail must be carefully wiped dry. Then paint with traumaticin between the nail and the granulations for several days. The chloroform penetrates into the flesh, and, after evaporation, leaves a thin layer of gutta-percha, which gradually separates the nail from the granulations, and protects the latter against external influences. Complete this protection with sticking plaster, which must be removed only for the purpose of another painting. When the nail, which must be left untouched for some time, has sufficiently grown out, its prominent portion must be cut off, the corners being rounded off. Healing will be all the safer if the patient abstains as much as possible from walking and wears very easy shoes.

Original Essays

"Life is not to live, but to be well."—*Martial.*

THE CHEMISTRY OF THE HOUSE.

By Dr. Drinkwater, F.C.S., &c.

Lecturer on Chemistry in the Edinburgh Medical School, &c.

THIRTEENTH PAPER.

CANDLES AND MATCHES.

Some form of candle must have been the earliest method of artificial illumination; but, if history is to be believed, how different the rude candle of our forefathers must have been to the beautifully rounded and figured production of the present day. The candles of the Romans were made by soaking string in wax; in all probability these would only be used by patricians,—the plebeians would have satisfied their requirements by smearing wooden splints with pitch. As far back as 1300, wooden splints smeared with fat served the purposes of candles in our own land, and although wax candles were known, the expense prohibited their use to any extent.

The Chandlers Company of the London Corporation dates from 1484, and they were incorporated as the Wax Chandlers' Company. The wax candles of these early days must have been very rough-looking specimens, as they were all made by the process of *dipping*,—a process which has now been superseded by *moulding*, the invention of a Frenchman. The Chinese have long manufactured candles from a species of vegetable wax procured from the wax-tree or candleberry-tree. Spermaceti candles, which are still made to a small extent from the waxy secretion from the head of the sperm whale, are of comparatively recent date. It was not until the great French chemist, Chevreul, made known his researches on the composition of fats and oils, in 1823, that any great advance in candle-making took place. The ordinary candle for common use prior to that date was the tallow candle known by the name of *Dip*, which indicates its method of manufacture. Cotton wicks were arranged on a stick and repeatedly dipped into melted tallow, until they were of the size required. Such candles gave a very poor light, and when blown out emanated a most sickly and disgusting odour.

Amongst the country population peeled rushes replaced the cotton wick, and in that interesting old book, White's *Selborne*, he mentions the method of manufacturing rush-lights, as adopted by him. To understand the great difference in illuminating power between the old rush-light and the modern candle, we must dip a little into the chemistry of fats and oils.

A true fat consists of two distinct parts, viz., an acid portion having all the characteristics of an acid as given in an earlier article, and a substance called *glyceryl*, which acts as a base to the acid, forming a salt. The acid portion resembles an oil in appearance, and in many of its properties. It is of a greasy, oily nature, floats upon water, and will leave a greasy stain on paper. It is also inflammable, and would burn in a lamp like an ordinary oil. The *glyceryl*, which we only know of when chemically combined with water as glycerine, is not inflammable, it has more a syrupy than an oily nature. In a common tallow candle, then, we have an inflammable, fatty acid, and an uninflammable glyceryl diluting down its light-giving powers. The obvious result of this is that an ordinary tallow candle gives a comparatively small amount of light, because it contains

incombustible glyceryl, whilst a composite candle has had all the glyceryl removed, and, therefore, contains nothing but combustible, fatty acids.

Before we knew so much of the chemistry of fats and oils, the preparation of glycerine was a troublesome and expensive process. Price discovered that any fat or oil could be decomposed into glycerine and fatty acid by distilling it with superheated steam, *i.e.*, steam passed through red-hot pipes. Price's glycerine and Price's candles, both now almost household expressions, were prepared at one time solely by this process.

Amongst the various substances which have been used for candle-making besides tallow are spermaceti, ozokerit, wax, and various fatty acids, the commonest being, perhaps, stearic acid, which is used in the so-called stearine candles. Spermaceti is the waxy substance extracted from the head of the sperm whale; ozokerit is a solid hydrocarbon mixture dug up in Galicia and other places; whilst wax, as we all know, is the substance which various species of bees excrete and form the cells of their hives with. In its crude condition, it has a dirty yellow colour, which, previous to being turned into candles is removed by bleaching. Stearic acid is the solid acid portion of tallow and other animal fats. Besides the wax named above, several other varieties are used, some of them being of vegetable origin. Paraffin wax is now, however, replacing to a considerable extent the more costly fatty materials, whilst even the so-called wax or spermaceti candles invariably contain a certain portion of this cheaper substitute.

Mould candles, as the name implies, are cast in metal moulds, up the centre of which is stretched the wick; pure wax will not lend itself to this treatment, as it shrinks in cooling, and would, therefore, leave the wick in a hollow tube of wax down the centre of the candle. To get over this difficulty, the melted wax is poured over the wick until the desired thickness is attained, and the candle is then finished and shaped by rolling on a marble slab until cold. It must be remembered that wax, spermaceti, and solid paraffin or paraffin-wax contain no glyceryl, and, therefore, are composed of substances which are all combustible.

As long as tallow was the chief source of the fatty acids for candle-making, Price's method was the one adopted for removing the glycerine; but there are now demands for tallow for a number of other purposes, amongst which may be mentioned for lubricating heavy machinery, for preparing oleic acid, for wool and leather dressing, and lastly, but certainly not leastly, for butterine manufacture. As a result of all this, palm oil has, to a great extent, taken the place of tallow acid. Its strongly marked yellow colour resists the treatment with superheated steam, and as the public, for some unknown reason, object to yellow-coloured candles, another process has been substituted. The palm oil is first treated with oil of vitriol, and then distilled with superheated steam; by this method the yellow colour natural to palm oil is destroyed, and the free palmitic acid is sufficiently colourless to be converted into candles.

Some of my readers will remember that in the good old days one piece of apparatus always accompanied the candlestick; that was a pair of "snuffers," which had to be used sometimes very frequently to remove the partially burned and useless wick. Nowadays no matter how often we see candles used we never see the "snuffers." In fact, I very much doubt if a number of the rising generation would know how to use them if even they did see them. The necessity for "snuffing" has been obviated both by chemical and mechanical means, the latter being universally adopted lately. The old wicks were simply twisted cotton, the modern ones are plaited, so that as they burn and uncoil they twist downwards and the burned end drops off.

At the recent meeting of the Hungarian Health Association lately held, Dr. Fodor referred to the unhealthy life conditions of the inhabitants of Hungary, and to the fact that the death-rate from consumption in Buda-Pesth and Vienna is about 700 to the 100,000 inhabitants, while in London it is only from 200 to 210.

Magazines for January.—In *Harper's Magazine* for January an article on "Modern Amateur Photography" will attract attention, as also will a paper on "Manufacturing Industry in Ireland." "Commodus—a Play" is not only beautifully illustrated, but well written. *The Housewife*, as usual, contains a great deal that is both practical and useful in the details of household management. *The Season* maintains its excellence as a guide to fashions, and contains pretty illustrations of evening and walking dresses. Messrs. Cassell's serials, the *Popular Educator*, *Illustrated History of England*, and *Countries of the World*, continue to prove interesting and instructive. *Belgravia* is strong in fiction, both serial and complete tales being above the average, while the *Gentleman's Magazine* begins the New Year well with a most diverse programme of papers, among which one on "Pantomime a Hundred Years Ago" is of seasonable nature.

Cooking Potatoes. — Ripe potatoes can always be cooked so that they present when done the agreeable floury appearance that attends the bursting of the starch cells, when these cells are intact in the uncooked potatoes. In new or unripe potatoes, where the cells are not yet matured, the cooked vegetable will be dense or waxy, but need not be soggy or watery. Sprouted potatoes no longer contain these cells intact; a chemical interchange of elements attends the formation of the germs, during which the starch cells are ruptured, so that the cooked potato will be less mealy than before it had thus become disintegrated. To make ripe potatoes mealy, the one point to be remembered is, that they must be taken from the water as soon as the starch cells are so far cooked that the cell walls are ready to burst; if drained at that moment, all superfluous water will escape in the form of steam, leaving the interior dry and floury. It does not matter whether the water in which the potatoes are placed for boiling is cold or hot when they are put into it, but they should be drained as soon as they can be readily pierced with a fork, covered with a folded towel, put where they will keep hot without burning; in ten or fifteen minutes they will be in good eating condition, and can be kept so for hours, hot and dry. The addition of salt to the water improves the flavour. In baking potatoes, care must be taken to remove them from the oven and break the skins when they are tender enough to yield to pressure; baked potatoes are best when they are just done, beyond that they deteriorate; they harden near the skin, and gradually lose their light, mealy consistency. Cold baked potatoes are the least promising for re-warming; but if, while they are still warm, they are mashed and mixed with butter, salt, pepper, and raw egg yolks, they may be used for any of the fried dishes that immediately follow. They will prove less satisfactory than boiled potatoes remaining from a meal, which have been similarly seasoned and mashed before they grow cold. When the intention is to fry, boil, or stew cold potatoes, they should not be mashed, but simply peeled, and suitably sliced when ready for cooking.

Personal Health

"Be timely wise;
With health all taste of pleasure flies."—*Gay.*

BILIOUSNESS.

TIMON the scoffer praised only one man, and scathed everybody else. That one man was Democritus, a Greek philosopher, who lived about 500 B.C. Even Bacon, who "speaks but lightly of the disputatious wisdom of the Greeks of the time of Plato and Aristotle, warmly commends the physiological studies of Democritus and his colleagues." In the *Anatomy of Melancholy* the frontispiece sets forth this savant, in quest of the seat of black choler.

"Old Democritus under a tree,
Sits on a stone with a book on knee;
About him hang there many features
Of cats and dogs and such like creatures,
Of which he makes anatomy,
The seat of black choler to see."

Democritus is referred to in beginning this reference in connection with biliousness, for he was one who pointed men a little way along the road to clearer knowledge of it. The word melancholy comes from two words which mean *black choler*, or, as we understand it, black bile. With the accumulation of bile in the body the circuit of the liver and digestive tract, with intermediate vessels, becomes overcrowded; the overflow charges the system at large, and the vision becomes tinctured with ochre and black. With a brisk cathartic, sweeping out the surperfluous bile, the vision clears; the mind, which was a foggy chamber of gloomy phantoms, becomes clear as reason can be. The melancholic are nearly always those of bilious temperaments.

We are working on the lines of Democritus still, and striving by experiment as best we may to unfathom the secrets hidden in that unknown country known as the Liver. We have not advanced to great precision yet, and the knowledge we have gained from practice is very far in advance of that obtained by other means, though to the latter we must look for precision.

Biliousness is the term we use when referring to that condition of the system where the digestion is poor, the skin dusky, the white of the eye cloudy, and the tongue coated with a tinge of yellow, with usually malaise, dreamy nights, clammy taste in the mornings, and mental depression. In the young and in those who have become chronic cases, a three-grain blue mass pill, followed by a saline next morning, will be beneficial. In the majority of cases something more is necessary, and where there is much nervous depression something more is imperative.

Insufficient muscular exercise, a deficiency of fresh air, and over-eating, are prime causes of biliousness, and if it be possible to eliminate these causes, the most successful results are possible. The direct result of any of these factors is impaired nerve-tone, to overcome which nux vomica is the thing. But provision must be made to carry off the products of tissue waste, and to stimulate the liver to its normal work. Cascara will do both these things, Euonynim the latter. A tabloid of "Cascara, Euonynim, and Nux," nightly at bedtime, will overcome any constipation and do yeoman service.

In cases of biliousness of years duration, where there are gastric pain and neuralgic attacks, no remedy will compare with four five-grain Ammonium Chloride Tabloids. A case of night blindness due to biliousness was recently cured by Antipyrin Tabloids, the great remedy for headache.

Nature should always be watched, and oftentimes the promptings of instinct will be worth more than a visit to many doctors. If there is a desire for acids, take advantage of it. Five drops of dilute nitro-muriatic acid in a wine-glass of water will answer, and often correct hepatic disturbance, and tone the nervous system.

Much meat should not be allowed, and over much fat will occasion eructations. Milk is not often tolerated. A vegetable dietary is the best, and the Kepler Extract of Malt will be found to be an unequalled food.

THE DREAD OF DEATH.

By JUNIUS HENRI BROWNE.

DEATH is still hailed King of Terrors, and his presence and court are yet ghastly enough; but in these days of reason and science he is in constant danger of dethronement, if, indeed, he is not already dethroned. Many persons, they who claim to be most enlightened, think him a usurper, without royal blood, nowise entitled to the crown he has worn for unknown ages. Civilization, somewhat incongruously, has increased rather than diminished his power. Many wild tribes, notably our own aboriginals, have, to drop metaphor, very little, if any, fear of death. They are taught to despise it, and, when the need comes, are faithful to their teachings. Many a savage might, in his disregard of danger and death, put to shame men of the present era, proud of their understanding and their culture. While many of the shadows have been dispelled by research and actual knowledge, many remain to haunt the mind and distort the future. Individuals and classes have overcome fear of death; but it continues to hold the multitude more or less in thrall. Whatever is mysterious is apt to be alarming; mystery is the father, if ignorance is the mother, of superstition.

Death is the mystery of mysteries, and the alarm it excites is naturally accompanied with exaggeration, which marks everything relating to it. Physical dissolution was long regarded as intensely painful, and bygone literature is full of such phrases as "the last struggle" and "the final agony," which are entirely without significance. The act of dying, it is now ascertained, is absolutely free from suffering; is really unconscious; insensibility always preceding it. Any anguish that may attend mortal illness ceases before the close, as thousands who have recovered after hope had been surrendered, have borne witness. Sudden and violent death, shocking to the senses, may not be, probably is not, painful to the victim. Drowning, hanging, freezing, shooting, falling from a height, poisoning of many kinds, beget stupor or numbness of the nerves, which is incompatible with sensation. Persons who have met with such accidents and survived them testify to this. Records to this effect are numberless. Death from fire dismays us; we can scarcely conceive aught more distressing. In all likelihood, however, it appears far worse than it is. Fire, probably, causes suffocation from smoke, or insensibility from inhaling flame, so that the agony we imagine is not felt. They who have been near their end have experienced more pain on returning, so to speak, from their grave than if they had gone to it. They have endured all the pangs, corporeal and mental, of death, without actually dying. It is an error, therefore, to suppose that men may not have tasted the bitterness

of death, and yet be alive and in good health. Every community contains persons who have made as intimate acquaintance with dissolution as they ever can make. He whose mind has fully accepted death has virtually died; no new calamity can fertilize his experience in that particular. All that can be learned from nature he may learn here; what is beyond, if anything, is unconditionally occult. Where knowledge ends, speculation may advance, and hope and faith build as they may.

I have seen a great deal of death, and I feel as if I had died repeatedly myself. From ten to fifteen I had, like most healthy boys, countless narrow escapes, when I ought, by all material laws, to have been killed again and again, and should have been but for the froward destiny which guards the rising generation. I fell from trees, roofs, swings, balconies; I was blown up with powder and fireworks; I was thrown from horses and carriages; I was nearly drowned. But my neck would not break; the breath forced out of my lungs would come back; swoons and unconsciousness would not last. Years later, during the Civil War, I learned, I think, what it is to be shot. The wound was very slight, resulting from splinters caused by a cannon ball passing through the wooden bulwarks of a ram on the Mississippi, which we were absurdly pretending, with some worthless old rifles, to defend from the enemy concealed behind the levee. The splinters cut my face and nearly put out my eyes, blinding me for the moment and giving me a nervous shock, and I believed that I was mortally hurt. I imagine that I must then have had the surprised look I have often observed in soldiers struck in a vital part. In a few seconds I perceived that the ball had missed my head and literally cut in two a poor fellow near my side, just in the rear. He uttered not a sound; he had not suffered, I am sure, any more than myself. The mode of his death was horrible to think of; to him it had been instantaneous extinction. Death is not to the dying what it seems to the living; it is terrible only to witnesses.

A common notion formed by those who theorize on the subject is that men, when they come to die, undergo some great change; that they alter their opinions, are inspired with new hopes and new beliefs, regard the past with regret, and express contrition. "You think so now," is often said to us; "you will think differently when you know that you have but a few hours to live." This may be true of some persons, especially of the weak and unstable, of those more remarkable for emotions than convictions. But it is not generally true. The majority of men in this age die as they have lived. If they have been selfish, unjust, sensual, vicious, they pass away in selfishness, injustice, sensuality, viciousness. Even should they promise amendment in serious illness, they would not, if they should be cured, keep their promises. Promises under such circumstances are almost invariably broken when the circumstances have been removed. Established disposition and constitutional bias may vary with strong provocation, but they steadily assert themselves in the main. The pious man, who has adopted a creed, follows his religious observances in a dangerous illness, and believes that his soul will enjoy a blissful immortality. The infidel, in like condition, though he regulates his worldly affairs, concerns himself not about the future, caring little and doubting much whether there be any. He is no more likely then and there, the orthodox view to the contrary notwithstanding, to recant, than the Christian is to proclaim himself suddenly an atheist. What we believe in perfect health we are apt to believe in the face of death, except that perfect health is the better test of our belief.

The manner of our life, often distinct from our faith, may have far less influence than is popularly thought on our closing days. Sinners may go out in peace and saints in terror. The Marshal de Richelieu was one of the most notorious profligates of his time; he cultivated every elegant vice of the seventeenth and eighteenth centuries; he was a paragon of unscrupulousness and debauchery. But good fortune ever attended him, and at ninety-two he terminated his disreputable existence as terminates a day in blooming spring. William Cowper, contemplative poet, purest, kindest, gentlest of men, who never wronged a human creature, spent sixty-eight years without hope, and died in despair.

One potent reason why, apart from instinct, we are repelled by the thought of death, is that we are totally unwonted to it. Possibly we have died many times, but we have no memory or consciousness thereof. So far as we can determine, we die but once, and what we do but once appears naturally important and solemn. If we could believe that death might visit us repeatedly, it would lose most, perhaps all, of its terror. We might not mind it much more than we mind sleep, which it so closely resembles. Sleep is temporary death, and is well-nigh as unintelligible; but the fact that we give a third of our life to it divests it of awe. The familiar is never sacred. Still, if on lying down for the night we begin to think that probably in half an hour we shall part with our identity; that our present consciousness will be obliterated; that our mind, or soul, or self, or ego, or whatever we choose to call it, may defy time and space, may perform the impossible, may speak with the dead, may reconcile the incompatible, may work miracles, we shall be apt to be deeply impressed with the mystery. An overwhelming sense of it may keep us awake; we may startle ourselves with futile speculation, as we are prone to do on the subject of death. But the regular repetition of sleep debars reverence for it, and we accept it as a matter of course, though we do not understand it because confident of its periodic return.

I wonder why it is that sleep is regarded so differently from death. Every one admits that sleep, sound, dreamless, continuous sleep, is delicious, one of the rarest luxuries possible, the restorer of peace, the soother of care, the balm of grief. It comes after the labours, anxieties, and troubles of the day, bringing rest and oblivion, as death comes after the labours, anxieties, and troubles of life. If death bring rest and oblivion—it can hardly bring anything worse—how few, comparatively, judging from their assertions, would be content! They say that they shrink from annihilation, while they hunger for sleep, the same thing in limited form. Does not expressed repugnance to annihilation spring from combining it with consciousness, as if one should say, "How uncomfortable it must be to feel that one is really annihilated." And yet many a weary, aching spirit has lain down at last, happy in the thought of entering into eternal sleep. Do not some of us so tire of life, as we find it here, that we do not care for its continuation in another world?

(To be concluded.)

Black Beetles and Cockroaches.—The easiest, simplest, and most efficacious mode to get rid of these domestic pests is to sprinkle the walls and floors with powdered lump sugar and borax, well mixed in equal quantities. If this be done for a week the intruders will entirely disappear.

The Family Circle

"The child is father of the man."—*Wordsworth.*
"In bringing up a child, think of its old age."—*Joubert.*

SLEEP-WALKING.

THE habit of sleep-walking can often be so far controlled that no very serious consequences result. Unfortunately, as we are taught by a recent fatal case, the absence of such control may be attended by risks of no mean kind. The obscure physical change which underlies the state of somnambulism is, therefore, one which possesses a practical importance, as well as a scientific interest for the physician. Its clear explanation, indeed, is as yet hardly possible, for, like almost every functional nervous disorder, it might be explained on more than one hypothesis of perverted nervous action; and there is no theory of its pathological plan which does not vary of necessity with the shifting creed which at present embodies and expands with our ever-growing knowledge of brain function. The one point of which we can lay hold is the fact of co-ordinate motor activity, cerebral in its development, and surviving actively in a state of apparent mental rest. That this should be due to an autogenetic energy of motor centres, rather than to the influence of sensory impressions on these, is, however, hard to believe.

The fact that sleep-walking is not necessarily associated with signs of muscular irritability during the intervals of wakefulness, while, on the other hand, such signs are common as proofs of constitution or disease—for example, chorea—which have no definite connexion with somnambulism, must tend to confirm an opposite view. It is much more probable that a directing impulse of sensory origin is primarily accountable for this inconvenient habit. The cerebral sensorium is a large and undefined area—how far intelligent we cannot say. It is important, however, to remember that complex and once volitional actions carried on by its means do often become by practice so really automatic that partial sleep or stupor does not arrest their unconscious performance.

This is what happens in somnambulism. The intellect and the controlling will are torpid if they do not slumber, while the sensori-motor man whom they should govern is awake and active. But whence comes the guiding impulse for his irrational movements? The sensation of muscular activity may supply much of this when the walker is on his feet. It is not so clear by any means, but highly improbable, that this force alone can begin his progression We are therefore driven to look for other causes of cerebral stimulation, and in this connexion it will be instructive to turn aside and consider other conditions of a like kind. Take, for example, dreams. Here we have another state of half sleep, without, it may be, any tendency to rise up or walk, but with marked disturbance of the ideational faculties. The intelligent sensorium is then alone active, and that drowsily.

A feature very frequently noticed, however, in dreamers is the tendency to restless movement. In such cases it would seem as if the capricious energy of scattered thinking centres touched here and there the springs of motor power, and stirred them up to a like fitful action. May we not believe that there are other states of dreaming, with fancies perhaps less vivid and irregular, but having more in common with the orderly influences of memory and will, and that these also stimulate the centres of motion to a like initiative and thus more purposeful but unconscious action? If so, we have an explanation of somnambulism, which is founded on an evident analogy, but may also fairly rank as a logical and scientific hypothesis. So much for the theory of this strange condition. Meanwhile the necessity for its practical treatment is, with some, at least, a pressing one.

As regards this part of our subject, it follows from the preceding remarks that daily worries, as they are fruitful causes of sleeplessness, must, as far as possible, be controlled if sleep is to be more than a dreamy drowsiness. Some men can throw off anxiety for a time when they go to rest; others, less gifted with self-control, ponder them in their beds. The advantage of the former in every way is, of course, apparent. It was a prudent resolution which led the philosopher Kant to spend a quarter of an hour before he retired each night in abstracting his mind from its pre-occupations; light sleepers might well adopt his method. Nor should the strictly physical causes of nerve irritation be overlooked. These, in fact, are worries which attack us through the visceral and other outposts of sensation. Late and heavy meals should therefore be avoided, for he sleeps best who retires with a cool head and digestive organs not required to add night duty to their daily task.

HUMAN BLOOD AND ITS DISTINCTION.

THE diagnosis of human blood is discussed by Dr. Henry Formad in the *Journal of Comparative Medicine*. Especial attention is given to the methods of examining blood-stains and measuring the blood-corpuscles.

For testing the question whether a certain substance is blood or not, the spectroscope and chemical re-agents come into play; but for the recognition of human blood the microscope alone is of any value, and the sole method yet found available with this instrument is that of measurment of the corpuscular elements. The differentiation of mammalian blood from that of lower orders of animals is made easy by the fact that in mammals alone is the cell round and non-nucleated. The differentiation between the blood of man and that of lower mammals depends entirely upon the micrometer.

Only the following animals have corpuscles larger than man, *i.e.*, larger than $\frac{1}{3200}$ of an inch; viz., the elephant, great ant-eater, walrus, sloth, platypus, whale, capibara, and (accorbing to Wormley) opossum. Animals the corpuscles of which are slightly below man in size, *i.e.*, having corpuscles from $\frac{1}{3500}$ to $\frac{1}{3200}$ of an inch average diameter, are the seal, beaver, musk-rat, porcupine, monkey, kangaroo, wolf, and guinea-pig. None of these are domestic animals. All other animals, including all domestic animals, have blood-corpuscles of a mean diameter less than $\frac{1}{3500}$ of an inch; and, in fact, those animals which, as a rule, are blamed for blood-stains found on the clothing and apparel of criminals (ox, pig, horse, sheep, and goat), have corpuscles with an average diameter less than $\frac{1}{4000}$ of an inch. He summarizes the facts as follows:—

1. The blood-corpuscles of birds, fishes, and reptiles, being oval and nucleated, can never be mistaken for human blood.

2. Fresh human blood cannot be mistaken, under the microscope, for the blood of any animal the corpuscles of which have a mean diameter of less than $\frac{1}{4000}$, or even $\frac{1}{3800}$, of an inch.

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BEWARE OF IMITATIONS.

3. (*a*) If the average diameter of blood-corpuscles in fresh blood is less than $\frac{1}{4000}$, then it cannot possibly be human blood; (*b*) if the diameter is more than $\frac{1}{3500}$, then it may be human blood; (*c*) if the blood-corpuscles, after exhaustive measurement, give a mean diameter of more than $\frac{1}{3800}$, then it *is* human blood (provided it is not the blood of one of the wild beasts referred to).

The foregoing applies especially to the diagnosis of fresh blood. With regard to dried blood, it is claimed that this can be recognized just as readily, provided it has dried quickly. Blood that has dried slowly undergoes decomposition, and its morphology cannot be made out. A good liquid for moistening blood is Müller's fluid; but perhaps the best is Virchow's solution, composed of thirty parts caustic potash and seventy parts water. At least five hundred measurements should be made in order to establish the average diameter of the cells.

If the corpuscles are spheroidal from absorption of moisture or crenated from drying, they may still be diagnosed, because such changes are the same in the corpuscles of all animals, and have really their proportionate and corresponding ratio of alteration in form and diminution in size, the range or scale of diminution being always alike in the same animal.

The red blood-corpuscles that have become spherical from imbibition of liquid have thus presented in Dr. Formad's experiments the following average diameters in the various animals: 1. Man, $\frac{1}{4300}$ inch; 2. Guinea-pig, $\frac{1}{4500}$ inch; 3. Wolf, $\frac{1}{4000}$ inch; 4. Dog, $\frac{1}{4800}$ inch; 5. Rabbit, $\frac{1}{4900}$ inch; 6. Ox, $\frac{1}{5600}$ inch; 7. Sheep, $\frac{1}{6700}$ inch; 8. Goat, $\frac{1}{8100}$ inch.

These figures show that the diameter of the artificially spherical corpuscles in each animal is just about one-third less than that of the normal bi-concave or disk-like corpuscles of the same animals.

The question has long been a moot one, as to whether the microscope can be depended on to determine positively, or not, that a given specimen of blood is that of a human being. Dr. Formad believes that this can be done, while other microscopists of equal eminence deny the possibility.

Potato-Poisoning.—A large number of soldiers were recently poisoned while on duty at one of the French fortifications. It is believed that the solanine in unripe potatoes was the cause of the sickness.

"Well, what were you brought up on?" asked the justice, as a blear-eyed tramp stepped up to the bar. "Judge, I was brought up on the bottle," was the quick response. The justice eyed him sternly a moment, and then ejaculated, "Ten days for drunkenness, and five dollars for contempt of court."

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THE DIGESTION OF FERMENTED MILK OR KOUMISS.

Mr T. R. Powell publishes the following paper in the *Pharm. Journal*:—

As far as I am aware, no suggestion has hitherto been offered which explains the retention of fermented milk or koumiss by the stomach when all other nourishment has been rejected. The following rough experiments may perhaps throw some light on the subject, which at all events deserves more attention than it has yet received.

It is, of course, well known that, if milk to which a few grains of pepsin and a few drops of hydrochloric acid have been added, be gently warmed, coagulation takes place almost immediately, the casein or cheese separating in a more or less solid condition, a similar coagulation probably taking place whenever milk is acted upon by the gastric juce of the stomach.

To render milk more digestible, lime water or aërated water is often added, in various proportions. Dilute, therefore, a portion of milk with a fourth part of aërated water, and add a few grains of pepsin, when it will be found that coagulation will take place almost as quickly as in a mixture of milk and water; but the condition of the two precipitates will differ somewhat, the casein separated in the presence of carbonic acid water being in a finer state of division and therefore more readily digested. If, however, lime water be substituted for the aërated water, the effect is far more decided, coagulation being delayed for some time, and the precipitate, when it at length falls, being, as in the previous case, very finely divided.

Koumiss or fermented milk, when freshly prepared, effervesces but slightly and resembles ordinary milk; but as the fermentation proceeds, lactic acid is formed, coagulation takes place, and the thick liquid becomes charged with carbonic acid. If, at this stage, two or three ounces be drawn off by a siphon tap and gently warmed, with stirring to drive off excess of gas, there will result a thick acid fluid, thicker than milk, though an equally good emulsion; and, coagulation having already taken place in the bottle, the addition of pepsin (which dissolves more readily than in the previous experiments) causes no further precipitation, the casein being in an almost gelatinous condition.

It seems probable, therefore, that the indigestion and nausea so often produced in cases where a milk diet is desirable are the results of the coagulation of the milk—a coagulation which may be delayed by the addition of alkalies; and it is further probable that koumiss is retained by the stomach, in preference to milk, for the following reasons: first, that coagulation has already taken place; second, that the precipitated casein—the nourishing constituent—is in a very fine, gelatinous condition; third, that carbonic acid is present in the free state and exerts a sedative action; and fourth, that free lactic acid still further stimulates and aids digestion.

Lead-Poisoning.—Dr. Herald, of Newark, N.J., has, during the past six months, had fifty cases of lead-poisoning in his practice, which he has traced to soda-water contained in the five-cent. patent-stopper bottles. In some of the stoppers examined by him he found 42·4 per cent. of lead, and in others 83·6 per cent. The action of the carbonic acid in the water upon the lead in the stopper ultimately produces a bi-carbonate of lead, which, when absorbed from the stomach, causes lead-poisoning.

Popular Science Papers

"Blessings on Science! When the Earth seemed old,
When Faith grew doting, and our reason cold,
'Twas she discovered that the world was young,
And taught a language to its lisping tongue."

—*Charles Mackay.*

SUN-POWER AND GROWTH.

BY JULIUS STINDE.

WE know that our planet retains the position which it occupies in the solar system through the force of gravitation; we know, furthermore, that all organic life on our earth depends upon the warmth and the light which it receives from the sun; but of the intimate relation which exists between organic life and the changes taking place on the sun we are in comparative ignorance, notwithstanding investigation has brought to light a number of important facts.

That the growth of plants in our zone stands in intimate relation to a rise in the temperature of the earth is well known; but the fact that a force varying in intensity and influencing the growth of the human organism proceeds from the sun is a discovery as novel as it is interesting. Some phenomena, possibly referable to a property of this kind, were observed during an experimental investigation of the diet furnished to the inmates of the Royal Deaf-Mute Asylum at Copenhagen.

When, some years ago, a change of diet was proposed for the inmates of this institution, the director, the Rev. R. Malling-Hansen, thought it desirable to obtain a clear idea of and some definite data concerning the thriving of the children under the system then practised, by which the results and the value of the new system of nourishment proposed could later on be accurately determined. The conscientiousness of the superintendent and pastor of the asylum would not permit the permanent substitution of a new system of diet without first possessing some facts by which its advantages or disadvantages would be plainly pointed out.

For this purpose the children were daily weighed and measured in groups, in which manner the total weight of the pupils was quickly and accurately ascertained. The technical details as well as full statistics on the subject will be found in Rev. Malling-Hansen's work, *Periodicity in the Weight of Children and in the Heat of the Sun* (Copenhagen, V. Trydes). These weighings present some very interesting facts.

Until then it had been supposed that the growth of a number of children (of different ages) averaged the same throughout the year, and that the increase in weight, as well as in height, of a greater number of children might be registered by a straight line slanting upward. The annotations of the weighings and measurements of the Royal Deaf-Mute Asylum at Copenhagen proved, however, that the universally-accepted biological theorem is wrong, for the weight-lines of about seventy children had no even gradation, but showed great changes during the year. During each of the three years the greatest increase in weight took place in the fall until the beginning of winter, then till the end of April the increase grew less, and after this time a loss in weight was noticed. At times the increase in weight of the children would cease suddenly for a few days, and, occasionally, during the time when an increase was expected, a general decrease occurred. Based upon his measurements and annotations, Malling-Hansen framed the following rule: The weight of a boy ranging from the age of nine to fifteen undergoes three periods annually,—a maximum, a medium, and a minimum period. The maximum period lasts four and a half months, commencing in August and ending the middle of December; the medium stage has the same duration, from the middle of December to the end of April. The minimum period appears during the remaining three months, from the end of April to the end of July. The increase in weight during the maximum period is three times that of the medium period, and almost all the gain of the medium period is again lost during the minimum period. From the working of this law it follows that in changing the diet at academies, schools, and asylums, the season should be considered. A good diet would give less satisfactory results if observed from April to June than a poorer diet if noted from August until December.

In the same manner as the *increase* in *weight*, the *increase* of *growth* fluctuates, and can likewise be divided into three periods. These periods commence and close about a fortnight before the periods of weight, but in such a manner that the minimum period of growth occurs at the time when the weight remains stationary, and may at times even be coincident with important loss in weight. Growth takes place, one might say, at the expense of the increase of weight. Accurate observation showed that the general growth of the trees in the garden of the institution corresponded essentially with the growth of the children. The maximum period of growth upward is followed by that of increase in circumference. The growth of the human body and the growth of the trees are consequently influenced in the same manner by some disposing cause. But what is this cause?

As the fluctuations referred to above coincided strikingly with the fluctuations of atmospheric warmth, Malling-Hansen believed that they could be attributed to local meteorological conditions; and it was really shown that with a rise of temperature the weight increased, and *vice versâ*. It was, however, ascertained that during the minimum period a rapid rise of temperature but slightly affected the increase in weight, and in the same way the decrease in temperature during the maximum period influenced the weight but little.

Furthermore, it seemed remarkable that the children should lose in weight instead of gaining, with the progressive rise in temperature in spring and in early summer, and that in fall the opposite relation should obtain. If heat alone were the active medium, the warmth indoors in winter would exert some influence; this was, however, not the case. Many other observations indicated that local changes of temperature were not the looked-for cause, as the fluctuations in weight of the inmates of the Royal Asylum corresponded to those of the deaf-mute children, notwithstanding the great difference in the location and surroundings of these two institutions. The force, moreover, seemed not to be influenced by the seasons, but to continue invariable during frost and heat, during sunshine and rain; its action, on the whole, was not affected by the warmth of indoors or by the cold without.

The fluctuations of the increase in weight were more regular than those of temperature; these fluctuations, with their great variations and periodicity, seemed to show that organic growth, of both human beings and animals, is affected by some to us as yet unknown cause. This influence is partly mirrored in the local fluctuations of temperature, and these again, of course, are in connection with the sun.

If the inference should prove correct, that increase and decrease in weight vary with the solar radiation, the thermometric registration of places on the Continent, not exposed to sea-winds, would coincide more accurately with the results of the weighings than the local climatic condition of Copenhagen would render possible.

Mr. Malling-Hansen undertook the task of tracing in curves the fluctuations in temperature of different meteorological stations recorded in the Danish Institute of Meteorology. The stations, which are at the following places, permit a broad view, as they are at great distances from one another: Copenhagen, Vienna, San Fernando, Lucknow, Tragpoor (India), Paramaribo (Guiana), Cordova (Argentine Republic), Port Dover (Canada), and Vioi (on the Congo).

The more these curves were compared with one another, the more did they show a remarkable analogy between the fluctuations of temperature over the whole globe, and the fluctuations in the weight of the children at Copenhagen. And, furthermore, the curious fact was discovered that the fluctuations in temperature in India, as well as in Copenhagen and in North and South America, varied in a similar manner, and were analogous to the fluctuations shown in the weight-increase of the children in accordance with the variations of temperature experienced at the different places. All these fluctuations in the weight of children picture the result of an influence emanating from the sun.

All the growth on the globe, from the most minute to the largest being, from the simplest to the most perfect organism, with all its variations and fluctuations, stands in close relation to the sum-total of heat of the earth's atmosphere.

As, however, the warmth of the sun is influenced differently at different places by clouds, by wind, and by dampness, it never reaches the organisms in its original condition. Notwithstanding this, however, the fluctuations of weight-increase progress in harmony.

Whatever it is that thus influences growth comes to us with the speed of the sun's rays: it varies from day to day, its intensity is the same at the same time throughout the globe, and it is not subject to local causes, to changes by wind and by weather.

Malling-Hansen calls this force "energy of growth;" he supposes that it reaches the earth with the speed of the heat-rays; separates from these, undergoes manifold changes, and, spreading over the whole earth, is the cause of the uniform fluctuations in the growth of all organic life. Upon future investigations falls the burden of proof of this assumption.

This influence of the sun-power may serve as an important factor in testing systems of nourishment, in the arrangement of diet-cures, and in studying the action of mineral waters. For instance, what weight can be attached to an opinion formed on the medicinal value of a mineral spring, if the test be made at a time when the energy of growth is on the decrease, and is thus perhaps assisting in the action of the spring, which at some other period might prove itself only half as efficient?

Good nourishment, a limited amount of mental effort, and as far as possible healthful surroundings during the maximum period of growth of girth, may tend to re-establish the right proportion of stature in children who have grown too rapidly.

There is no known reason to doubt that adults gain and lose in the same periods. If persons who are desirous of growing less stout leave the watering-places at the end of August or earlier, they do so at the time of weight-increase, and a careless diet will hence, in shorter time than it would under similar circumstances in winter, cause them to grow stouter again.

With regard to the school vacations, these should be given from the end of June to the beginning of September, during the two maximum periods of growth; the bodily strength which has been gained will aid the mental work.

Professor of Chemistry: "Gentlemen, I hold in my hand a vial of soda. What chemical shall I combine with it to produce a valuable article of commerce?" Goodsby (waking up): "Br-r-randy!"

Horsford's Acid Phosphate.—Dr. L. Waite says: "It gives me much pleasure to express the satisfaction I have derived from the administration of Horsford's Acid Phosphate. It has been found to be particularly efficacious in chronic dyspepsia as well as in those conditions of the system where there is loss of nerve power. From its use for a period of about eight weeks, to the exclusion of all other remedies, I attributed the restoration of health of a patient who was emaciated to the last degree in consequence of nervous prostration and dyspepsia. This patient's stomach was in such an irritable condition that he could not bear either liquid or solid food. An accomplished physician of many years' experience, whom I called in consultation, pronounced his case an incurable one. At this stage I decided to use Horsford's Acid Phosphate, which resulted as above mentioned."

Practical Chemistry in Housekeeping.—The *Popular Science News* notices some facts connected with the preparation of food that illustrate how the housekeeper is in reality a practical chemist. The object of all cooking, or application of heat to the raw material of food, is to bring about changes in the character of certain bodies of complicated organization; and this is often done without producing any difference in composition perceptible to the chemist. Such is the case when albumen is coagulated: we clear coffee with albumen or the white of an egg, through its power of inclosing particles in suspension when it becomes hard. If the coffee-maker uses fish-skin, it performs the same office by forming a kind of leather with the tannin of the coffee. Glue is a coarse and cooking gelatin, a refined form of the same substance which is insoluble in cold water, but absorbs it, swelling up and becoming soft. When heated with the water, gelatin dissolves, and then, when cooled again, "jells"; but if boiled too long it loses the "jelling" quality; the same property of gelatinizing is possessed in fruits by pectine, which is, however, a distinct substance. The stimulating properties of tea and coffee are due to their peculiar alkaloids, theine and caffeine; their flavour to aromatic substances which are extracted by the hot water from the leaf or berry. Wheat-flour is composed of starch with gluten, and more or less of mineral or inorganic substances. The finer and whiter flours are nearly pure starch, and are not so nutritious as the less attractive brown flours. The raising of dough is a true process of fermentation, precisely similar to that of the brewer or distiller, but the alcohol soon passes away. Sugar, when heated, melts, and is converted into an uncrystallized, pliant mass, known as barley-sugar or sugar-candy. At a somewhat higher temperature it is decomposed, and a dark-brown substance, known as caramel, is formed. Granulated sugar is seldom adulterated. The term salt, in its technical sense, includes the fats, which are compounds of characteristic acids with glycerin as a base. Upon adding potash or soda, the acid combines with the alkali, forming soap, and the glycerin is set free.

Public Health

"Health is the first Wealth."—*Emerson.*

PAPERS ON BURIAL AND CREMATION.

II.—PREMATURE BURIAL AND BURIAL ITSELF.

By T. GREEN, M.D.

THERE is a subject which is a cause of painful anxiety to many persons, which is the possibility of being interred before life has become extinct. It should be known that this subject has been thoroughly investigated. Dr. Prime, for many years a journalist, made every case that was reported a matter of careful inquiry by addressing a letter to the place where the interment was reported to have occurred, and as an editor he read of many cases as usually reported with all the horrors naturally supposed to be associated with them. His inquiries found not a particle of truth in a single case.

Our knowledge of the functions of the organs of our bodies will enable us to see how utterly false all these stories must be. If no signs of life can be discovered by the most careful examination of a body, is it not impossible that when shut up in a coffin made as close as it is and covered under six feet of earth it should breathe again? How long would it be possible for a man in full health to breathe and live covered up in this way? Would anyone who has studied the laws of respiration believe that a person believed to be dead could possibly revive in the grave? Let us, then, reject all these stories, and remove from the minds of those over whom we have influence this dread of premature burial.

There is another fear which seems to be widespread, affecting the cultivated as well as the ignorant, to many distressing—the fear of being eaten by worms after burial. This belief is not without interest to our profession, whose knowledge of the laws of life should enable them to decide as to a question of this kind, and in the department of natural history it is surely worthy of our investigation.

Sir Thomas Browne, like a wise physician, and in advance of the age in which he lived, more than two hundred years ago, thus wrote: "While we suppose common worms in graves, 'tis not easy to find any there; few in churchyards above a foot deep; fewer or none in churches."

It is singular that persons who have knowledge of animal life can for a moment entertain this belief. Those who work even very little in the earth know that neither worms nor any other creatures are found more than a few inches below the surface. This belief became prevalent from the observation of worms feeding on the bodies of animals when left unburied in the open air. Much is due, doubtless, to the poets who have recorded their belief in their writings.

The translators of King James's version of the Scriptures believed it so firmly that they thought it necessary to make it the belief of Job also, who did not say a word in proof of it as it prevailed then and now (Job xix. 26). A reference to this passage shows the use of italics by which the translators introduced their own belief and that of the age. The new version omits the word worms, and gives the translation thus: "And after my skin hath been thus destroyed." The Rev. Robert J. Breckenridge, a prominent divine of the Presbyterian Church, was greatly interested in this subject, and during a long life sought for its truth, where it was likely to be found, among church-sextons and superintendents of cemeteries—all who would be likely to have any knowledge on the subject. He never found the least evidence of the existence of worms in graves. He never learned that any of those persons favourably placed for making the discovery, had ever seen a worm of any kind in or on a body interred in a grave.

I know a very intelligent undertaker, who has followed his business for many years, with the best opportunities for learning the truth. During our late war, he had the care of the remains of many American soldiers which had been interred in the South, and which had been disinterred and sent home. He informed me that he had never seen a living creature of any kind feeding on these remains. He said the same in reference to his experience in a large cemetery and churchyards to which his business has called him during the many years of his service. I do not know anyone who is more competent to make such observations, or whose testimony could be received with more confidence.

But we are told Job has other references to worms (Job xvii. 14), "I have said to the worm, Thou art my mother and my sister." Then, surely, it will not eat us. The expressions are figurative, as "The womb shall forget him; the worm shall feed sweetly on him" (xxiv. 20). "My flesh is clothed with worms and clods of dust" (vii. 5).

"They lie down alike in the dust, and the worm covereth them" (xxi. 26). Evil and despised men and weak men are compared to worms. The writers so confess themselves (Ps. xxii. 6), "But I am a worm." One of the Herods was eaten up of worms and died (Acts xii. 23). And some of his relatives richly merited the same termination of life.

We have a report from a correspondent of the *Therapeutic Gazette*, in Paris, of the recent discovery of insects on the bodies found in the Ivry Cemetery, Paris. The writer describes four species of Diptera (flies), one of the order Coleoptera (beetles), two of the order of Thysanoura (spring-tails).

There must be an error somewhere in the investigations made in the cemetery at Paris. If the eggs deposited by the blow-fly before interment became maggots in the grave, this will not explain the statement that other creatures two years later reach a body enclosed in a coffin and buried several feet under ground. There must have been some condition different from that of interment with us, about which I shall inquire; for after many years of inquiry it is strange that nothing as now reported has ever been observed. From Paris itself there is evidence against this recent statement. When the Cemetery of the Innocents was removed in that city in 1786-87, great masses of adipocere were found, into which the bodies there interred had been changed. This, of course, could not have occurred if the animal substances had been destroyed by worms.

Such changes have been observed in this city, and elsewhere in this country. The remedy which one may propose is cremation, the only remedy for all the evils of "burial."

A NEW disinfectant is composed of four parts essence of rosemary, one each of essences of lavender and thyme, and eight parts nitric acid. Shake the bottle containing the mixture, pour a little upon a sponge, and allow it to evaporate. The vapours will mask any bad odours and destroy germs. This preparation is especially applicable in the sick-room.

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Healthy Houses

"A happy home must be a healthy home."—*Anon.*

MOISTURE IN HOUSES.

It is stated that the sudden change of the weather recently from cold to warm and damp has caused much damage to wall-paper and other articles in houses. Of course it has, and it is so simply because many people do not study the plainest common sense principles in airing their houses.

One evening lately people went to bed with a hunt for extra blankets, because of the sudden and severe chill in the atmosphere. When they rose in the morning, their bedrooms, parlours, dining-rooms, &c., were yet chilly from the cold of the previous day, while the outside atmosphere had suddenly become not only warm, but hot and oppressive with dampness.

Inconsiderate people opened their windows and doors because the weather was warm, forgetting that the excessive moisture in the atmosphere would rush in with the warm air, and swiftly deposit itself on the cold walls, furniture, &c., and penetrate wall-papers, curtains, bedding, and everything within reach that presented a surface colder than the air that carried it into the house.

Of course the moisture loosened and discoloured paper; made curtains as limp as a washrag; made beds damp and musty, and generally spoiled everything that water could spoil; but all could have been avoided by following the plain, common sense rule of not opening houses suddenly to suddenly changed atmosphere, carrying an excessive quantity of moisture.

A pitcher filled with cold water and placed in a room in summer will "sweat"—at least, that is what it is commonly called. The pitcher does not sweat, because it is not porous and cannot sweat; but the cold water inside of it chills the outer surface, and as soon as the outer surface of the pitcher becomes cooler than the atmosphere in the room, the moisture of the air will be precipitated upon the pitcher in drops.

This simple illustration should teach all housewives to avoid suddenly opening rooms in a house when the outside atmosphere is warmer than the temperature of the rooms, and full of moisture. In all such cases the wall-paper, furniture, &c., being cooler than the outside air, will speedily have the moisture of the atmosphere precipitated upon them, and it will require days to restore the house to the dry condition that is essential to health.

There are no arbitrary freaks in the laws which govern the atmosphere surrounding us, and there is nothing abstruse in mastering them. Warm, damp air will ever precipitate its moisture in houses or elsewhere whenever it comes in contact with anything chilled by a cooler atmosphere, and that is the whole story. The only thing to be added is, that when people have thus ignorantly or negligently allowed their houses to become damp, they should light fires and dry them as promptly as possible.

The Board of Health of Paris has ordered the erection of an apparatus in the Lariboisière Hospital for the disinfection of cuspidores used in the tuberculous wards and by tuberculous patients generally. "This innovation," says the *Bulletin Médical*, "should be introduced immediately in all the hospitals of the country."

POMPEIIAN ARCHITECTURE.

It was most frequently in the upper part of the house that the ladies of the family had their sleeping apartments, though these were sometimes arranged round the peristyle, or second of the two open courts on the ground floor; the first and largest being the atrium, a large court with splendid Mosaic pavement, rich frescoes, and many statues and columns. An open space in the roof let in the air and light, and a shallow marble tank beneath collected the rain water, and was generally also furnished with a small jet of spring water, flowing from the beak of a bronze goose held by a beautiful boy, or some other similar statuette. This part of the mansion and the rooms adjoining it were more especially set apart for the master, who, when a person of consequence and wealth, as we may suppose the husband of our lady to be, received every morning crowds of friends, clients, and hangers-on of every description. The rooms allotted to gentlemen of the family were ranged on each side of the atrium, small for the most part, and only receiving light and air from the doorway; the bed often rested on a niche built in the wall, or on a bedstead of wood with bronze corners. But even these small and comparatively dark rooms were adorned with wall-decorations of the most graceful description, and in the most tasteful and brilliant colours. Beyond the atrium, and between it and the peristyle, was the reception-room for state occasions; here were kept the statues or busts of the ancestors, and the family archives and pompous inscriptions on the walls often testified to the fame and glory of the house. Near this apartment was the library, where connoiseurship and dilettantism in matters appertaining to the fine arts were displayed; for the Pompeiians expended fabulous sums in the purchase of antiquities found in the early Greek graves in Capua and elsewhere, and in bronze figures and other works. No doubt some traits of the excessive luxury which prevailed in Rome during the latter days of empire reached the distant walls of commercial Pompeii; and, as in Rome the villas and palaces of the aristocracy became the depository of collections, so the houses of the wealthy who choose Pompeii for their country residence or seaside resort also contained numberless precious artistic works, and the love of beauty displayed even in the humblest dwelling proves that an æsthetic taste was universally spread among the inhabitants.

Sulphonal.—Some medical reports have been published confirming the earlier opinions in favour of this substance. Dr. Matthes records the results of a series of clinical trials of the soporific, which were carried out under the supervision of Professor v. Ziemssen in Munich. The doctor gave ninety-nine single doses to twenty-seven patients, and the therapeutical virtues of the compound may be judged from the fact that a complete effect was obtained in 72 per cent. of the administrations, while in 9·25 per cent. the remedy was somewhat less successful; making 81·25 per cent. of cases in which it more or less accomplished the desired end. In 18.75 per cent. of the total number of times it was given the results were negative. The dose was found to vary with the individual, so that no hard and fast line of maximum and minimum could be drawn. For a majority of doses fifteen grains were found to be sufficient, and in all instances it was observed to be desirable to administer the compound some hours before the sleep was desired, as its effects are only slowly produced. It is preferable to other hypnotics in being free from taste and odour, and without any tendency to interfere with the vital functions.

Jottings from the Journals

" Th' ingredients of health and long life are
Great temperance, open air,
Easy labour little care."—*Sir Philip Sydney.*

Dosing Trees with Medicine.—Referring to the popular idea that sulphur placed in holes bored in the trunks of trees will be dissolved and carried by the sap to the foliage in such quantities as to render it offensive to insects, a recent *Bulletin* of the Massachusetts Agricultural College Experiment Station says that it has been found, upon cutting down trees which have been plugged with sulphur, that the material remains unchanged for many years. It is added, says *Garden and Forest*, that while we are spending so much effort to prevent injury to our trees from borers, we certainly ought not to make holes in them many times larger than those made by any known species of insect. In order to ascertain whether sulphur in soluble form can be introduced into a tree so as to affect the fungus growths causing rusts, blights, and mildews, some large rose-bushes, badly mildewed, were treated with saturated solutions of potassium sulphide, hydrogen sulphide, and ammonium sulphide. The liquid was forced into holes bored into the main stem with a small gimlet, and the orifice was plugged with grafting wax. At first a slight improvement in the amount of mildew upon the leaves was noticed; but in September all the bushes but one were dead, presumably from the effect of the holes. Until further trials are made, this experiment indicates that while there may be some promise that antiseptics introduced into the sap-circulation may prevent the growth of fungi, some safer means of introducing the solutions must be found. From the nature of the case, it is hardly possible that any substance can be introduced into the circulation in sufficient quantities to affect insect life. Professor Maynard, who prepared the *Bulletin*, suggests that an inspection be made next season of the elms in Boston which were bored and filled with chemicals last spring to make the leaves distasteful to beetles. Careful weighing would determine how much of the powder had escaped from the hole, and analysis could detect the presence of any excess of sulphur in the leaves.

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The Table.—The majority of housewives like to see a nicely-set table, and, indeed, many who are not housewives find a well-set table an inviting sight. The dishes may be as plain as they will, yet if placed on the table neatly, always providing they are clean, they present an attractive picture. Many women pay so little attention to this work that the table is never set the same way twice, and, consequently, never looks as well as though a little care were exercised in its arrangement. It is just as easy, if not easier, to set a table well as carelessly, for, as the dishes must be put on, it is much better to have one certain way of arranging them and that way adhered to at all times. System is an excellent thing in housework, when not carried too far, and in nothing is it of more importance than in the arrangement of the table. When you know just where to place each article the work is much quicker done. Any woman with a little thought can arrange a table in a sensible, attractive manner, though she may never have done this work before, yet the absence of this very thought is the thing that is to blame for a carelessly arranged table. All know that according to the fitness of things the sugar bowl should not be at one end of the table and the cream pitcher at the other end, yet this is seen quite frequently on a carelessly set table. Each housewife has her own particular way of doing this work, which she is positive is the best, but there are a few general rules that can be applied to all. It is a nice plan to have a cover of flannel to place under the tablecloth, as it gives the cloth a much better appearance, bringing out the pattern clearly. It is best to have fine table-linen, but as this cannot always be afforded, a cheaper grade will be much improved by the use of the flannel undercloth. It will also save the wear of the cloth, which is a great deal to recommend it. It deadens the sound of the plate or dish striking the table, which is so annoying to a nervous person, and taking everything into consideration, there are few things that give better satisfaction to the household. In putting on the tablecloth be sure that it is even, for there is nothing that will give a table such an untidy appearance as a cloth put on unevenly. Put on the plates evenly, about an inch from the edge. The majority of housewives in putting on plates turn them face down, while a few never do so unless in summer, and then only when there is no netting to cover them from the flies. The latter way is preferable to the former, as they are all ready for use. Place in the plate the napkins folded plain. Fancy folded napkins are only fit for restaurants, and should not be used in the home. Place the knife at the right of the plate and the fork at the left. If individual salts and butters are used, place these in the space between knife and fork at the top of the plate, the butter at the right and salt at the left. Sugar, milk, and spoon receiver should be always together, the sugar and milk side by side with the receiver in the centre a little in advance of both. If there is a castor it should occupy the centre of the table, but as this article is not so much used as formerly, some other article, such as a dish of fruit, sauce, &c., should be used. Pepper, salt, and all seasonings, group together; bread and butter place side by side. When serving tea, coffee, &c., always put it at the right hand of the person served, and berries, sauce, &c., at the left. These are only a few general rules, but if carried out, using a little thought as to what dishes go together and what separately, and place them accordingly, the table so arranged cannot help being attractive.—*The Housewife.*

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Atmospheric Impurities and Water. — The danger of pollution from atmospheric impurities is greatest in the neighbourhood of smoky cities. At London this was formerly the source of great annoyance. The surface of the water in reservoirs was often covered with a film of soot and dust, and if the water remained in the reservoir a sufficient time it acquired a bitter flavour. The General Board of Health in its report in 1852 on the supply of water to the Metropolis, in consideration of this trouble, and also of the fact that filtered water after exposure in open reservoirs frequently had to be strained before it could be used for domestic purposes, on account of growths of algæ in the reservoirs, arrived at the following conclusion: "Against the modern engineering practice of exposed and open reservoirs we would rather revert to the custom of the Roman engineers, and recommend covering the service reservoirs and aqueducts to the utmost extent practicable." Influenced by similar considerations, the Select Committee of the House of Commons reported a bill, which was passed July 1, 1852, containing the

following clauses: "Every reservoir within a distance in a straight line from St. Paul's Cathedral in the city of London of not more than five miles, in which water for the supply for domestic use of the Metropolis or any part thereof is stored or kept by any company, shall be roofed in or otherwise covered over: Provided always, that this provision shall not extend to any reservoir the water from which is subjected by the company to efficient filtration after it is discharged from such reservoir and before it is passed into the mains or pipes of the company for distribution, or to any reservoir the whole of the water from which is distributed through distinct mains or pipes for other than domestic purposes, nor to any reservoir whatever the water stored in which shall be used exclusively for other than domestic purposes. . . . No water shall be brought or conducted within the Metropolis by any company for the purpose of domestic use otherwise than through pipes or through covered aqueduct unless the same shall be afterwards filtered before distribution." English engineers, having in mind the conditions obtaining in England, appear to regard protection against soot and dust as the most important point, although they by no means ignore the importance of protection against light and heat. French engineers, on the other hand, seem to consider protection against solar influences as the most important. This naturally follows from the fact that French cities are much less smoky than English cities. The atmospheric conditions in the United States resemble those of France, although there are localities in this country which are as smoky as any in England. The need of covered reservoirs has been felt here for several years, especially since the use of ground-water as a supply and the practice of filtering have become common, and several have been constructed.—*Sanitary Engineer.*

Sanitary Appliances, Etc.

LA BOURBOULE.—A FAMOUS NATURAL MINERAL WATER.

Among the most notable of the springs of the Continent is the water of La Bourboule, situated in the province of Puy-de-Dôme, France, at an altitude of 2,600 feet. This water has long enjoyed a high reputation for the treatment and cure of skin-troubles, and also of that condition known as *anæmia*, or "poorness" of blood, which forms the starting-point of so many ailments. The secret of the success of La Bourboule water consists in its containing the highest proportion of arsenic which is known to be associated with any mineral spring. As a tonic remedy, arsenic has always been valued by physicians from the earliest days, and the great advantage of La Bourboule water consists in its presenting arsenic in a safe, because natural, fashion,—compounded in Nature's own underground laboratory,—and united with other mineral constituents, all calculated to enhance the value of this spring. The idea of employing arsenic as a remedy for skin-ailments and for beautifying the complexion is one which, unfortunately, has led many persons to fly to the crude drug,—a practice of the most reprehensible kind by whomsoever encouraged, and one which has often been condemned in our pages. To take arsenic in the shape of a drug is simply a piece of dangerous folly,—unless the remedy is prescribed by a physician. Those who require arsenic at all should certainly give La Bourboule water a fair trial, inasmuch as all the risks attendant on the use of the crude drug are thereby obviated, and the remedy can be taken (in the form of this mineral water) in a state in which its effects are gradually produced without undue constitutional disturbance.

The composition of La Bourboule water is given in the official analysis as follows:—

	Per Gallon.
Metallic Arsenic	0·4935 grains.
or Arsenious Acid	0·7567 ,,
or Arseniate of Soda (Codex Standard)	1·9929 ,,

The subjoined shows the proportions of its other chemical constituents per litre:—

Carbonic Acid (free)	3·626 grains.
Chloride of Sodium	198·842 ,,
,, Potassium	11·361 ,,
,, Lithium	trace
,, Magnesium	2·240 ,,
Bicarbonate of Soda	202·440 ,,
,, Lime	13·335 ,,
Sulphate of Soda	14·588 ,,
Peroxide of Iron	0·147 ,,
Protoxide of Manganese	trace
Silicic Acid	8·400 ,,
Alumina	trace
Organic Matter	trace
Total	454·979 grains.

As regards the quantity and manner of taking this valuable water, it may be said that the dose varies from half a tumblerful to two or three tumblerfuls a day, one half the quantity for children. It may be taken at meal-times, pure or mixed with wine. Sometimes it is best taken half an hour before meals. If the digestive organs are at all unfavourably affected by it, it may be warmed by the bain-marie, or mixed, either with a warm infusion of limes, or with orange-peel juice, or seltzer water, &c. In case of colics or diarrhœa, two or three drops of tincture of opium or belladonna may be added, as the physician may direct.

It may interest the fair sex to know that La Bourboule water has been extensively used in the form of the douche and as a lotion for application to the skin in cases of skin-ailments. The water is now imported into Great Britain by the sole agents, Messrs. Ingram & Royle, of 52, Farringdon-street, London, E.C., and as its qualities are not affected by keeping, the enterprise of this firm may be said to have placed a valuable remedy within the reach of all.

Our Letter-Box

"Conference [maketh] a ready man."—*Bacon.*

NOTICES TO CORRESPONDENTS.

All Communications for the Editorial Department (including Books for Review, Specimens of Sanitary Appliances, &c.), to be addressed to "The Editor of Health," 2, Paternoster-square, London, E.C. *Those intended for the Publishing Office to be sent to* Mr. A. P. Watt, The Publisher, *at the same address.*

RULES FOR CORRESPONDENTS.

Owing to the mass of letters which reaches us each week, we respectfully direct the attention of Correspondents, desiring replies in the Letter-Box Department of Health, to the following rules:—

1. All questions are answered free of charge in the columns of Health. A limited space only, is available for the insertion of replies each week.
2. All letters must be legibly addressed to "The Editor of Health, 2, Paternoster-square, London, E.C.," *and to no other address.*
3. Questions to which answers are desired by post, are so replied to solely at the Editor's discretion. If no answer is sent by post, the query will be replied to in the "Letter-Box" columns of Health. A stamped addressed envelope must accompany all queries to which a private reply is desired.
4. Addresses of physicians and surgeons will, as heretofore, be forwarded free to Correspondents on their enclosing a stamped addressed envelope for reply.
5. Correspondents are requested to write on one side of the paper only, and to make their inquiries as brief as may be consistent with clearness.
6. From the necessity of sending Health to press early in the week, no Correspondent can be replied to in the "Letter-Box" columns in the same week in which the inquiry is received. Replies crushed out of any issue will be found in the succeeding number.
7. No Post Cards must be used in sending queries. Violation of this rule deprives the sender of the privilege of a reply.

"ELECTRICITY IS LIFE."
(TRADE MARK.)

PULVERMACHER'S
WORLD-FAMED
GALVANIC BELTS,

FOR the CURE of NERVOUS DISEASES.
HAVE RECEIVED TESTIMONIALS from
THREE PHYSICIANS to
HER MAJESTY the QUEEN,
THE ACADÉMIE DE MÉDECINE of Paris and
FORTY MEMBERS of the
ROYAL COLLEGE of PHYSICIANS of LONDON.

RECENT TESTIMONIALS.

TESTIMONIAL FROM DR. GORDON STABLES.

Twyford, Berks, 4th December, 1888.

Gentlemen,—I have always much pleasure in recommending your Galvanic Appliances, especially for the cure of nervous complaints, as I know them to be thoroughly genuine and largely used by the medical profession.—Yours faithfully, GORDON STABLES, M.D.

Messrs. Pulvermacher & Co., 194, Regent-street, W.

GALVANISM *v.* NERVOUS EXHAUSTION.

Tarbolton, Ayrshire, N.B., 4th December, 1888.

Dear Sir,—Having been afflicted with much weakness of the nervous system, I resolved to try one of your Pulvermacher Belts, and I have now much pleasure in testifying to the good effects it produced after wearing it for a short time. Please reserve my name and address for inquirers, and oblige, yours truly, M. D.

Mr. J. L. Pulvermacher, 194, Regent-street, W.

GALVANISM *v.* INDIGESTION and SLEEPLESSNESS.

10, Victoria-road, Kentish-town, N.W., 1st December, 1888.

Dear Sir,—Having suffered from indigestion for some years, my life was a complete misery. I could not eat, drink, or sleep without suffering. I tried several private doctors and attended two hospitals without any relief. As a last resource I purchased one of your Galvanic Belts, which I wore continually for some little time before deriving benefit, as my case was very severe and of long standing.

I am pleased to tell you now that I am quite cured, and am enjoying perfect health, and I ask you to insert this letter for the benefit of others. Whilst under medical treatment I must have taken gallons of medicine, but during the time I wore your Belt I did not take a pennyworth.—Yours very sincerely, JAMES FORD.

Mr. J. L. Pulvermacher, 194, Regent-street, W.

GALVANISM *v.* PARALYSIS OF THE ARM.

Charlakoute, near Calne, Wilts, 30th November, 1888.

Dear Sir,—I have received great benefit from your treatment for paralysis of the arm. My case was so bad that I entirely lost the use of the limb, and the doctors in Bath Hospital told me I should never have the power to use my arm again. I am so thankful to say that since wearing your Bands, with the blessing of God, I am now quite restored, and can use one arm nearly as well as the other.—Yours sincerely, S. HARRIS.

J. L. Pulvermacher, Esq., 194, Regent-street, W.

GALVANISM *v.* CONSTIPATION AND NERVOUS EXHAUSTION.

Rose-hill-terrace, Brighton, 28th November, 1888.

Dear Sir,—On the 15th of September last I bought a set of your Galvanic Bands, without much hope of success, but I have been surprised at the result. My health has improved altogether, and my bowels are very regular, whereas before I commenced your treatment I had to take pills every night. I am deeply thankful I ever applied to you, and beg to remain yours truly, R. A. JAMES.

Mr. Pulvermacher, 194, Regent-street, W.

GALVANISM *v.* DIFFICULTY OF BREATHING and SLUGGISH CIRCULATION.

Windsor-street, Liverpool, 20th November, 1888.

Dear Sirs,—I am happy to tell you that the benefit so far derived from your treatment has by far exceeded my expectations. My respiration is easier, my circulation has greatly improved, and I now feel very cheerful. The respiration has wonderfully improved, and I am confident that I shall owe my complete recovery to your grand invention.—Yours very truly, M. FAUKE.

Messrs. Pulvermacher & Co., 194, Regent-street, W.

GALVANISM *v.* INDIGESTION and NERVOUS DEBILITY.

Spofforth, Wetherby, 19th November, 1888.

Sir,—I have received great benefit from wearing your Galvanic Belt. My digestion is better, and I have gained strength and weight. I shall have much pleasure in recommending your treatment to any one who may be suffering like myself,—Yo rs respectfully, W. SEAVERS.

Mr. J. L. Pulvermacher, 194, Regent-street, W.

GALVANISM *v.* NERVOUS EXHAUSTION.

The distressing symptoms of Nervous Exhaustion and Debility are speedily removed by means of PULVERMACHER'S world-famed GALVANIC BELTS, which are so arranged as to convey a powerful electric current direct to the affected parts, gradually stimulating and strengthening all the nerves and muscles, and speedily arresting all symptoms of waste and decay.

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FOR FURTHER TESTIMONIALS, both Medical and Private, see new Pamphlet, "GALVANISM: NATURE'S CHIEF RESTORER OF IMPAIRED VITAL ENERGY," post free on application to

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QUERIES AND ANSWERS.

REPLIES: GENERAL, SANITARY, AND MEDICAL.

[Readers of HEALTH will kindly note that when back numbers of the journal are desired, the letters containing such requests and stamps for the numbers should be addressed to the PUBLISHER of HEALTH, 2, Paternoster-square, London, E.C., and *not to the Editor*.]

PHONOGRAPHER.—See and follow advice given to "Hairless" in HEALTH, No. 299. Keep your hair very short for a time, and wash it once a week with Bayley's Spermaceti Soap and tepid water. Avoid the use of all hard brushes and combs. If your general health is not good, take a tonic,—such as Seller's Easton's Syrup: a teaspoonful in a wineglass of water, twice daily, after food.

TRIO.—Try the effect of applying a little Hazeline as a lotion; and see that you avoid constipation by diet, &c., as ordered to "W. H. Richardson" in last week's HEALTH. If this does not cure you, write again.

TOMPKINS.—You have already been replied to, but under another name. Why do you not remember the *nom-de-plume* you used? You can only judge by the exercise of your common sense. If you feel well and able to perform your work heartily, we should say you need have no further concern about yourself. Read the pamphlet, "A Lecture to Young Men" (post free, for 1s. 1d., 356, Strand, London, W.C.), as a suitable and safe guide to you.

TICK.—The holiday-season has delayed your letter and reply alike. Try the Soden Mineral Pastilles, advertised in our pages, for your throat ailment. They form a most excellent remedy. At bedtime, inhale the vapour of a pint of very hot water to which a little "Sanitas" Fluid has been added; and internally, take a dessertspoonful of Scott's Pure Cod Oil Emulsion after meals, as a nutrient and tonic.

INA.—Read the pamphlet above recommended to "Tompkins," and note what is therein said about cases like yours. All you need is to reform your diet, according to the counsel given in the pamphlet.

E. W. R.—The electrical appliances you have been using are in every way reliable, and we should advise you to continue their use for a while longer. Cases like yours require a time to recover tone. You should take also a wineglass of Vin Mariani after your meals, twice daily, as a suitable tonic, and a cold or tepid sponge bath each morning may do you a world of good. Write again, if not bettered, in a month or so. For the constipation, which you must avoid, follow out the diet-directions given in the pamphlet to which you refer.

F. E. MARTIN.—We have already replied to your queries, and we cannot decipher the *nom-de-plume* you have selected. We can only now repeat that you must see a surgeon and be guided by him as to the treatment of your case. There is no such cure as that you indicate. If you require a truss that will fit you, and can be worn without pain or inconvenience, apply to the Medical Battery Company, 52, Oxford-street, London, W.

JOHN TURNER.—Your former letter never reached us. If you will specify the kind of worms you desire to treat, we will advise you as to a remedy. Any chemist will supply you with a corn solvent which is to be applied to the corn, and the latter to be pared occasionally. Mr. Martindale, of New Cavendish-street, London, W., will supply you with an excellent solvent.

GERMAN.—The change should do you no harm. You should simply exercise great care in your diet, and avoid all indigestible foods, such as cheese, pastry, and salt meats. Guard also against constipation, and take a supply of the Cascara Tabloids with you as a remedy against this latter ailment.

SIMPSON.—The formula given to "Charles B." in HEALTH, No. 296, will be found to answer your want.

RUSTIC. — You should read the pamphlet recommended to "Tompkins" in the present number, and note what is said therein about diet, &c. When your symptoms trouble you, take twenty grains citrate of potash in a tumbler of water, and see that no constipation exists. A hot bath at bedtime will also serve to aid your cure.

HYGIENIC.—The drug is a perfectly well-known one. Frazer & Green, of your city, will supply you with it, and make up the prescription to which you allude.

J. E. L.—When the first set of teeth decay, they, as a rule, affect the second set. Much may be done to counteract the effect of the early decay by the adoption of care in keeping the child's mouth clean, and free from food-particles. But on this point you should take the advice of a good dentist, who will be able to advise you as to the means you should employ. Send us stamped, addressed envelope, and we will forward you the name of a reliable London dentist.

E. F. G. H.—You might certainly try the prescription to which you allude. See that you bathe the parts night and morning in cold water, or take a cold sponge bath each morning. What you name is not uncommon even in persons who are perfectly healthy, and may arise, indeed, from very excess of vigour. If not bettered, write again.

STIRLING.—We think you should give the treatment you are now trying a fair trial. A tonic such as that you are using is exactly suited to your case, and you should continue its use, more especially as you are feeling the better for its employment. Write again, however, if you are not cured in a few weeks' time.

C. R. LINDSAY.—Apply to any chemist for the information you seek.

D. F. S.—Give up using a hard brush and all small and hard combs. Wash your head once a week with Bayley's Spermaceti Soap (17, Cockspur-street, Pall-mall, London, S.W.), and apply a little glycerine of borax to the roots each morning.

NERVES.—What you name is only the result of some want of tone in your nervous system. In our experience, what you name is not uncommon in athletes, and in those given to sports at large. Our idea is that you, possibly, overstrain yourself in your athletics, and hence have to pay for such overstrain in the shape of your nervous feelings. Take our advice, and limit your athletics, and note the result. Write again, if necessary. Glad to hear your skin-disease has been cured through HEALTH.

L. B. Z.—You should drink the Pitkeathly Water (advertised in our pages) regularly and freely. Use this water with Lithia added thereto, as sold by Messrs. Reid & Donald, Perth, N.B. As regards your diet, we recommend you to avoid all sweet foods, pastry, cheese, and salt foods; and let your diet be of light character,—milk, cocoa, white boiled fish, chicken, &c.,—and after your meals, thrice daily, take fifteen drops of Fer Bravais in a little water. Let us hear result of this treatment in a week or two. A Turkish Bath once every ten days or so will do no harm.

FOREST.—What you name arises simply from bad and deficient ventilation of your premises. If you secure free ventilation, for your gas especially, you will not be troubled thereby. The ventilation you have at present is obviously deficient.

JOHN MACGREGOR.—Your plan is utterly uncalled for, and would have no effect. What you name, besides, is not a disease, as you seem to suppose. We advise you to read the pamphlet, "A Lecture to Young Men" (post free for 1s. 1d. from Mr. Renshaw, 356, Strand, London, W.C.), and learn therefrom all the health-rules necessary for your case.

OMEGA.—1. Salt can have no such effect; besides, you do not seem to be aware that milk curdles naturally in the stomach. The gastric juice is an acid secretion. 2. The oil might interfere with digestion somewhat.

M. E. LAING.—Order of your druggist. Messrs. Burroughs, Wellcome & Co., Snow-hill-buildings, London, E.C., are the makers.

L. W.—You should shave entirely for a time, so as to give your moustache a fair chance of regaining its strength. No other means are likely to benefit you. Let us hear from you after a trial of this advice.

W. D. K.—What you name is due to feeble assimilation of your food. Rest rigidly after meals, and see that you avoid all indigestible foods. A teaspoonful of Easton's Syrup (Seller's), taken in a wineglass of water after your meals, may aid you. If not, try the plan of taking a glass of stout with your dinner. Total abstinence may be too rigid a regimen in your case.

CORROBORATIVE EVIDENCE.

IT is easy to make assertions, but often difficult to prove them. People now-a-days demand a verification of any statement that may be made, and it is right that they should. For months the columns of this paper have contained the most extraordinary statements, made by the proprietors of a much advertised article as to the merits of their remedy. To-day they present the testimony of our neighbours and friends in verification of what they have asserted in the past. Such testimony must be accepted and respected because it comes from people living right here in Surrey, where the truth of their statements can be easily verified. The following are published with the hope that the fullest investigation will be made by the public.

Mr. D. Mills, 2, Drakefield-road, Hatcham.—"I have found great benefit from disease by the use of 'Warner's SAFE Cure.'"

Mr. J. Prior, 244, Brockley-road, Brockley, S.E.—"I have been cured of indigestion, caused by sluggish liver, by the use of 'Warner's SAFE Cure.'"

Mr. J. A. Piccaver, 140, Stockwell Park-road, Brixton.—"Having been saved from a premature grave by the use of 'Warner's SAFE Cure,' I am anxious the world should know of its efficacy in curing Bright's disease."

Mr. E. Henry, 128, Hither-green, Lewisham.—"After a long spell of sickness, I have been restored to vigorous health by the use of 'Warner's SAFE Cure.'"

Mrs. Merrita Cox, 125, Albert-road, Peckham.—"I cannot express my gratitude for the benefit I have derived from 'Warner's SAFE Cure.'"

Mr. Emanuel Beebee, 47, Haymerle-road, Peckham.—"I suffered from stone in the bladder, and was told by my medical man that I must go to the hospital and have it cut out; I took 'Warner's SAFE Cure,' and was cured."

Statements like the above ought to be convincing; but if you still doubt, write to any of the above, or all of them, enclosing stamp for reply, when full particulars will be sent you. If you are feeling unwell and are ignorant of the cause, write Warner & Co. for Treatment Blank and have your case diagnosed free of expense.

"Warner's SAFE Cure" can be had of all chemists and medicine vendors in the United Kingdom, at 4s. 6d. per bottle, or of H. H. Warner and Co., 86, Clerkenwell-road, London, E.C.

MILK IN POWDER!

UNSWEETENED OR SWEETENED.

PREPARED BY

THE SWISS MILK CO.,

ST. GAUL, SWITZERLAND.

THE CHEAPEST, PUREST, AND MOST NUTRITIOUS

Of ALL similar productions.

THE LANCET says:—"A very interesting and valuable preparation."

BRITISH MEDICAL says:—"The Preparation is sure to be appreciated."

THE MEDICAL PRESS says:—"A milk which is with difficulty distinguished from fresh cow's milk."

HEALTH says:—"A milk which cannot but commend itself to everyone who can enjoy pure, rich milk."

CARL LAWINSKI, 50, Mark-lane, LONDON, E.C.

Telegraphic Address—"LAWINSKI, LONDON."

TROUBLED.—Look to your teeth in the first instance, and brush them night and morning with camphorated chalk, using after washing a little tincture of myrrh, added to tepid water, as a mouth-wash. Use also the powders recommended to "Servant" in HEALTH, No. 296.

C. GEAR. — Apply to Messrs. Pulvermacher, 194, Regent-street, London, W.

A. BRAY.—The Xylonite Truss of the Medical Battery Company, 52, Oxford-street, W., will suit you. The truss you are at present wearing is of antiquated type.

ST. MUNGO.—Bathe the part with hot salt and water at night, and in the morning have a hot and cold douche played alternately on the part. If this fails, try massage, repeated daily for a week or so, and use as an outside application a little Bow's Liniment. If not bettered by these suggestions, write again.

BEAUFORT.—There is no cure save such as a physician can alone employ.

Nervousness

Horsford's Acid Phosphate,

A NERVE FOOD.

Nervous diseases are often due to a diminution of the phosphates which exist in every fibre. The Acid Phosphate supplies the phosphates, and relieves nervous exhaustion.

Dr. C. J. DENNY, M.R.C.S., Blackwater, Hants, says: "I prescribed it in cases where the chief faults of health appeared to be want of nerve nutrition, with marked benefit."

Dr. SPENCER T. SMYTH, L.R.C.P., Forest-hill, Tyson-road, London, says:—"I have given it in nervous disorders where phosphoric acid is indicated, particularly in cases of nerve prostration, and find it a valuable remedy."

Descriptive Pamphlet post free on application to

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Beware of Substitutes and Imitations.

BOTH. — Scrofula is a constitutional disease which can only be successfully treated by a physician. The remedies employed are cod liver oil and iron, fresh air (especially that of the seaside), salt-water baths, and other means destined to strengthen the system at large.

NOVAR. — We cannot answer such a general question. All depends on the stage of the disease, the age of the patient, and other conditions.

SUUM CUIQUE.—Avoid constipation as a first and necessary condition of your cure, and to this end avoid much butcher meat, and take plenty of stewed fruits and vegetables, milk puddings, &c., Dahl's Cakes (to breakfast and tea); and if any drug is required, take twenty drops Cascara Cordial in water, once or twice daily, between meals. For the rest, try Bayley's Cure for Piles (17, Cockspur-street, Pall-mall, London, S.W.), and let us hear the result of your use of this remedy. If need be, write again, and we will be glad to advise further. There is no need for you to take a sea voyage; indeed, assuming that the piles form your real and only ailment, such a step, in our opinion, would be most injudicious. We have no faith in the so-called "painless" treatment,—unless by that phrase is meant a cure by drugs, or application such as we have indicated to you for trial.

APPREHENSIVE NERVOUSNESS.

Debility, Rheumatism, Gout, Sciatica, Torpid Liver, Kidney Disorders, and every form of weakness may be speedily cured by wearing

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It generates a mild continuous current of Electricity.

Produces no Shock or Discomfort whatever. Testimonials, Pamphlet and Advice free, personally or by letter.

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ENTIRELY SUPERSEDES

COAL TAR AND CARBOLIC SOAPS.

Is acknowledged to be the most practical and effective soap ever introduced. For Skin Affections and Toilet purposes it is eminently serviceable in producing a clear, smooth, and healthy condition of the skin and complexion.

Boxes of 3 Large Tablets, 1s. 1d., by post from the Sole Maker,

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And of all Chemists.

DOIGS "Septicide" DROPS AND LINIMENT

KILL DISEASE IN EVERY FORM.

UNPARALLELED for Bronchitis, Diphtheria, Chest, Liver, and Kidney Complaints, Diarrhœa, Constipation Congestions, Rheumatism, Gout, Inflammations, Children's and Female Ailments, Fevers, Ulcers, Old Sores, Blood and Skin Diseases, Wounds, Pains, Bruises, &c., &c.

Of all Chemists, 1s. 1½d. per bottle; or post paid of the Proprietor, ALEXANDER DOIG, 7, St. Paul's Churchyard, London, E.C. Demonstrations Free from 10 to 4 daily.

POTTER.—1. We should not think there was any danger of the lotion you name making hair grow on your face. 2. Try touching the moles daily with a little of the tincture of perchloride of iron. 3. Do not use any hard combs or brushes, but wash the hair once a week only with Bayley's Spermaceti Soap and tepid water, and rub into the scalp a little glycerine of borax. Bay rum is also an excellent cooling and cleansing preparation.

LEX.—1. For the cure of scurf see advice given to "Potter" above, as regards the use of glycerine of borax, washing, and soft brush. 2. For hair-treatment otherwise, follow advice given to "Hairless" in HEALTH, No. 299.

A TROUBLE.—Wash the parts daily with tepid water and Coal Tar Soap, and thereafter rub a little mercurial or blue ointment on the affected parts. This will rid you of the ailment.

STOP THAT COUGH

BEFORE IT REACHES THE LUNGS

By taking a small Bottle of

SCOTT'S EMULSION

IT WILL SURELY CURE YOUR COUGH AT ONCE,

and, unlike ordinary cough remedies, will strengthen and build up your system.

SCOTT'S EMULSION is a skilful combination of Cod Liver Oil with Hypophosphites, and the potency of these two tried and unequalled remedies has been increased threefold by their ingenious combination with Glycerine into this very palatable Emulsion.

SCOTT'S EMULSION will cure Consumption in its earlier stages without fail, and will surely relieve in the later stages and greatly prolong life.

FOR DELICATE, SICKLY CHILDREN, AND FOR EMACIATION,

It will increase flesh and strength when all other remedies have failed.

SCOTT'S EMULSION of Cod Liver Oil with Hypophosphites is entirely deprived of the disagreeable taste of plain Cod Liver Oil and much more effective.

Physicians prescribe it in preference to the plain oil, having seen its remarkable curative effects.

All Chemists, at 2s. 6d. and 4s. 6d.

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The "**Hospital Gazette**" says:—

"Among the advantages it possesses may be "enumerated the ease with which it may be pre-"pared, and its **agreeable flavour** and **aroma.** "In addition to these, it is, when "properly made, hardly thicker "than coffee, thus avoiding the "disadvantage of some preparations "which are thick and muddy; this "is produced by the **total absence** "**of any thickening matter.** To "sum up tersely, we would say that "**everyone should elect to use it.**"

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"Great Barton" WHEATMEAL

Still stands unrivalled for Brown Bread, Porridge, & Biscuits.

The above is regularly used and recommended by Sir Henry Thompson. Professor Mayor, of St. John's College, Cambridge, says: "Mr. Scott has supplied me for some months with Whole Wheatmeal, at most reasonable rates. The Meal is very palatable, and, I believe, perfectly pure and genuine" Present price—1/8 per stone of 14lb., sent out in 28lb., 70lb., and 140lb. bags. Wholesale prices quoted.
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These Essences produce in a few minutes a delicious temperance wine or cordial. Ginger, Orange, Raspberry, Black Currant, &c.

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A Sample Bottle of either Essence or Extract sent on receipt of 9 stamps, or a Bottle of each for 15 stamps.

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WHOSE TESTIMONIAL IS WITH EACH BOX.

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TINS, 1/6, 2/6 & 5/-

For Children and Invalids,

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FOR
Infants, Children, Invalids, & Dyspeptics.

This delicious and highly nutritive Food is distinguished from all others by the ease with which it can be digested and absorbed. It forms a delicate nutritive cream, rich in the constituents necessary to maintain vigorous health.

The attention of Mothers and Nurses is directed to the following important facts:—BENGER'S FOOD does not contain dried or condensed milk, but is mixed with warm fresh milk when used, which is far better. The digestive principles contained in this Food have the power of rendering the farinaceous matter soluble, and of preventing the formation in the Stomach of hard, indigestible masses of curd, which so often cause cow's milk to disagree with Infants and Invalids. By the use of BENGER'S FOOD the curd is reduced to the same flocculent, digestible form in which it exists in human milk. In no other Food has this result been attained. It can therefore be taken with comfort when all others disagree.

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COD LIVER OIL CREAM.

It is Invaluable as a Strengthening and Fattening Agent for DELICATE CHILDREN and INVALIDS generally.

Sample free. Bots., 2s. 3d., 4s., and 7s. 6d.; by post 3d. extra. Prepared by R. THOMSON, Chemist, 40, Dublin-street, Edinburgh.

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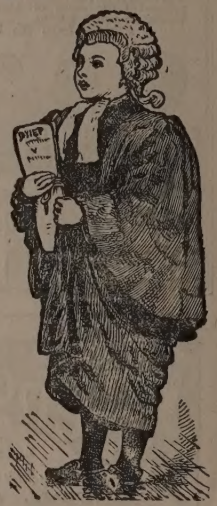

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HYGIENIC MILK-FOOD PREPARATIONS.

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FACTORIES AT STUTTGART AND HARBATZHOFEN, BAVARIAN ALPS.

Loeflund's Cream-Milk is the original rich milk from the Bavarian Mountains (10.85 per cent. Milkfat, *Soxhlet*), condensed **without any addition whatever**, without cane-sugar or antiseptics, sterilized in a special apparatus, **free** from all microbes, keeping in all climates for several years. Price **6d.** a tin.

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